# QC ABSTRACT

**NAME OF WORK:** Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

| SL NO | Item Of Work | Name of Test | Frequency of Test/Quantity | Executed Quantity | Number of Tests Required | Number of Tests Conducted |
|---|---|---|---|---|---|---|
| | | **Materials** | | | | |
| 1 | Cement | Fineness by dry sieving | One Test | | 1 | 1 |
| | | Finess by Air permeablity method | One Test | | 1 | 1 |
| | | Density | One Test | | 1 | 1 |
| | | Standard Consistency | One Test | | 1 | 1 |
| | | Initial Setting time | One Test | | 1 | 1 |
| | | Final Setting time | One Test | | 1 | 1 |
| | | Soundness (Le Chatelier's Method) | One Test | | 1 | 1 |
| | | Compressive Strength | One Test | | 1 | 1 |
| 2 | Coarse aggregate(40 mm down size) | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| | | Specific Gravity | One Test | | 1 | 1 |
| | | Bulk Density(Loose) | One Test | | 1 | 1 |
| | | Bulk Density(Compacted) | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| 3 | Coarse aggregate(20 mm down size) | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| | | Specific Gravity | One Test | | 1 | 1 |
| | | Bulk Density(Loose) | One Test | | 1 | 1 |
| | | Bulk Density(Compacted) | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| | | Aggregate crushing Value | One Test | | 1 | 1 |
| | | Aggregate Impact Value | One Test | | 1 | 1 |
| 4 | Fine aggregate | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| | | Specific Gravity | One Test | | 1 | 1 |
| | | Material finer than 75 micron | One Test | | 1 | 1 |
| 5 | Steel | Bend test | One Test | | 1 | 1 |
| | | Tensile Test | One Test | | 1 | 1 |
| | | Yield Test | One Test | | 1 | 1 |
| | | ReBend test | One Test | | 1 | 1 |
| 6 | KERB | Core Compressive strength | One Test | | 1 | 1 |
| | | Corrected Cylinder Compressive strength | One Test | | 1 | 1 |
| | | Equivalent Cube Compressive strength | One Test | | 1 | 1 |
| 7 | Precast (100mm) | Core Compressive Strength | One Test | | 1 | 1 |
| | | Corrected Cylinder Compressive Strength | One Test | | 1 | 1 |
| | | Equivalent Cube Compressive Strength | One Test | | 1 | 1 |
| 8 | Precast (250mm) | Core Compressive Strength | One Test | | 1 | 1 |
| | | Corrected Cylinder Compressive Strength | One Test | | 1 | 1 |
| | | Equivalent Cube Compressive Strength | One Test | | 1 | 1 |

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BBMP, Bangalore

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | PCC(M15) | Compressive Strength(7days and 28days) | 3 set /16-30 cum | 20.4 | 6 | 6 |
| 10 | RCC(M20) | Compressive Strength(7days and 28days) | 8 set /201-250 cum | 206.01 | 16 | 16 |
| 11 | WMM | Sieve Analysis | One Test | | 1 | 1 |
| | | Impact Value | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| 12 | DBM | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | STRIPPING VALUE | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| | | IMPACT VALUE | One Test | | 1 | 1 |
| | | Specific gravity | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| | | Marshal Stability | One Test | | 1 | 1 |
| | | Marshal flow | One Test | | 1 | 1 |
| | | Percent air Voids | One Test | | 1 | 1 |
| | | Percent Voids in mineral Aggregate | One Test | | 1 | 1 |
| | | Percent Voids filled with Bitumen | One Test | | 1 | 1 |
| | | Density | One Test | | 1 | 1 |
| | | Gradation | One Test | | 1 | 1 |
| 13 | BC | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | STRIPPING VALUE | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| | | IMPACT VALUE | One Test | | 1 | 1 |
| | | Specific gravity | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| | | Marshal Stability | One Test | | 1 | 1 |
| | | Marshal flow | One Test | | 1 | 1 |
| | | Percent air Voids | One Test | | 1 | 1 |
| | | Percent Voids in mineral | One Test | | 1 | 1 |
| | | Percent Voids filled with Bitumen | One Test | | 1 | 1 |
| | | Density | One Test | | 1 | 1 |
| | | Gradation | One Test | | 1 | 1 |
| 14 | BITUMEN | Ductility | One Test | | 1 | 1 |
| | | Softening Point | One Test | | 1 | 1 |
| | | Penetration | One Test | | 1 | 1 |
| | | Flash Point | One Test | | 1 | 1 |
| | | Fire Point | One Test | | 1 | 1 |
| 15 | TACK COAT | Rate of spread | One Test | | 1 | 1 |

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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-06-28-53** **Date: 26-04-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 23-04-2021 |
| **Sample Type** | : | Birla Super 53grade |
| **Reference to BIS codes** | : | IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,<br>IS 4031 (Part 1,2 3,4,5, 6,11):1988<br>IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4<br>IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5<br>IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6<br>IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5<br>IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5<br>IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6 |
| **Date of test** | : | 24-04-2021 |
| **Environmental Conditions during test** | : | Temperature: 26°C<br>Humidity: 72% |

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | Fineness by dry sieving (%) | 1.98 | _ |
| 2 | Finess by Air permeablity method ($m^2$/kg,Min) | 297.3 | 225$m^2$/kg, Min |
| 3 | Density (gm/cc) | 3.11 | _ |
| 4 | Standard Consistency (%) | 29.5% | Not specified |
| 5 | Initial Setting time | 175 minutes | Not less than 30 minutes |
| 6 | Final Setting time | 285 minutes | Not more than 600 minutes |
| 7 | Soundness (Le Chatelier's Method) | 1.5mm | Not more than 10 mm |

* The results obtained are satisfactory as per standard requirements.

**Note:**

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

Any correction in the report will make this report invalid

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Samples will be disposed after 30 days from the date of issue of test certificate

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Authorized Signatory
**Quality Manager**



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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-06-28-53** **Date: 22-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 23-04-2021 |
| **Sample Type** | : | Birla Super 53grade |
| **Reference to BIS codes** | : | IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,<br>IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5<br>IS 4031 Part 6, Determination of Compressive Strength, Clause 6 |
| **Date of test** | : | 24-04-2021 |
| **Environmental Conditions during test** | : | Temperature: 26°C<br>Humidity: 72% |

**Compressive Strength**

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | 3 Days | 28.5N/mm$^2$ | Not less than 27 N/mm$^2$ |
| 2 | 7 Days | 39.0N/mm$^2$ | Not less than 37 N/mm$^2$ |
| 3 | 28 Days | 58.5N/mm$^2$ | Not less than 53 N/mm$^2$ |

* The results obtained are satisfactory as per standard requirements.

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## TEST REPORT ON COARSE AGGREGATES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-06-28-53** **Date: 26-04-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample condition** | : | Satisfactory |
| **Date of Receipt** | : | 23-04-2021 |
| **Sample Type** | : | 40mm down size coarse aggregate |
| **Reference to BIS codes** | : | IS: 383:2016 (Specification for Coarse and fine Aggregates )<br>IS: 2386 :1963(Part - 1,3,4) RA2011<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption<br>IS 2386 Part 4: Mechanical Properties |
| **Date of test** | : | 23-04-2021 |

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:**

**Total weight taken : 15000 grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 80 mm | 0 | 0 | 0.0 | 100 | 100 |
| 2 | 40 mm | 214 | 214 | 1.4 | 98.6 | 90-100 |
| 3 | 20 mm | 5049 | 5263 | 35.1 | 64.9 | 30-70 |
| 4 | 10 mm | 7132 | 12395 | 82.6 | 17.4 | 10-35 |
| 5 | 4.75 mm | 2121 | 14516 | 96.8 | 3.2 | 0-5 |
| 6 | Pan | 484 | 15000 | 100.0 | 0 | --- |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-06-28-53** **Date: 26-04-2021**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 11.9 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 10.1 | |
| 3 | Specific Gravity | 2.59 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.39 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.46 | – |
| 6 | Water Absorption(%) | 0.22 | – |

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## TEST REPORT ON COARSE AGGREGATES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-06-28-53** **Date: 26-04-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 23-04-2021 |
| **Sample Type/ Size** | : | 20mm down size coarse aggregate |
| **Reference to BIS codes** | : | IS: 383:2016 (Specification for Coarse and fine Aggregates )<br>IS: 2386 :1963(Part - 1,3,4) RA2011<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption<br>IS 2386 Part 4: Mechanical Properties |
| **Date of test** | : | 23-04-2021 |

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:**

**Total weight taken : 5000 grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 40 mm | 0 | 0 | 0 | 100 | 100 |
| 2 | 20 mm | 195 | 195 | 3.9 | 96.1 | 90-100 |
| 3 | 10 mm | 2714 | 2909 | 58.2 | 41.8 | 25-55 |
| 4 | 4.75 mm | 1988 | 4897 | 97.9 | 2.1 | 0-10 |
| 5 | Pan | 103 | 5000 | 100 | 0 | – |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-06-28-53** **Date: 26-04-2021**

### PHYSICAL PROPERTIES

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 12.4 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 11.8 | |
| 3 | Specific Gravity | 2.57 | _ |
| 4 | Bulk Density(Loose) (Kg/l) | 1.41 | _ |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.49 | _ |
| 6 | Water Absorption(%) | 0.28 | _ |
| 7 | Aggregate crushing Value(%) | 23.1 | Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface. |
| 8 | Aggregate Impact Value(%) | 21.7 | 30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface. |

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**R KARTHIK RECHAN**
Authorized Signature
**Quality Manager**


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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2021-06-28-53**

**Date: 26-04-2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 23-04-2021

**Sample Type** : Fine Aggregate

**Reference to BIS codes** : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption

**Date of test** : 23-04-2021

**Total weight taken** : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Grading Zone I | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1 | 10 mm | 0 | 0 | 0.0 | 100.0 | 100 | 100 | 100 | 100 |
| 2 | 4.75 mm | 27 | 27 | 2.7 | 97.3 | 90-100 | 90-100 | 90-100 | 95-100 |
| 3 | 2.36 mm | 55 | 82 | 8.2 | 91.8 | 60-95 | 75-100 | 85-100 | 95-100 |
| 4 | 1.18 mm | 239 | 321 | 32.1 | 67.9 | 30-70 | 55-90 | 75-100 | 90-100 |
| 5 | 600 micron | 205 | 526 | 52.6 | 47.4 | 15-34 | 35-59 | 60-79 | 80-100 |
| 6 | 300 micron | 203 | 729 | 72.9 | 27.1 | 5-20 | 8-30 | 12-40 | 15-50 |
| 7 | 150 micron | 191 | 920 | 92.0 | 8.0 | 0-10 | 0-10 | 0-10 | 0-15 |
| 8 | Pan | 80 | 1000 | 100.0 | 0.0 | --- | --- | --- | --- |

**Result :The tested Sample Conforms to Grading Zone II**

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Assistant Executive Engineer
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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2021-06-28-53** **Date: 26-04-2021**

## PHYSICAL PROPERTIES

| Sl.no | Tests | Result | Requirements as per IS 383:2016 |
|---|---|---|---|
| 1 | Water Absorption(%) | 1.5 | – |
| 2 | Specific Gravity | 2.59 | – |
| 3 | Material finer than 75 micron(%) | 6.9 | Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10% |

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**R KARTHIK RECHAN**
Authorized Signatory
**Quality Manager**

Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore-97


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# TEST RESULTS OF STEEL

**Lab ID** : **CP-2021-06-28-53**

**Date: 29-04-2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 28-04-2021

**Sample Type** : Sunvik

**Reference to BIS codes** : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.

**Date of test** : 28-04-2021

| Sl.No | Identification of sample | Grade of the sample | Diameter of the steel bar | Weight of the sample | Yield stress | Tensile strength | Elongation | Bend test | Rebend test |
|---|---|---|---|---|---|---|---|---|---|
| | | | (mm) | (kg/m) | (N/mm2) | (N/mm2) | (%) | | |
| 1 | Sunvik | Fe500 | 8 | 0.391 | 512 | 652 | 20.0% | Satisfactory | Satisfactory |
| 2 | Sunvik | Fe500 | 10 | 0.616 | 528 | 672 | 20.0% | Satisfactory | Satisfactory |
| 3 | Sunvik | Fe500 | 12 | 0.888 | 544 | 668 | 20.0% | Satisfactory | Satisfactory |

* The results obtained are satisfactory as per standard requirements.

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**Authorized Signatory**
**Quality Manager**


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# TEST REPORT OF PRECAST COVER SLAB

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-06-28-53** **Date: 18-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 14-05-2021 |
| **Sample Type /Size** | : | Precast Cover Slab (100mm) |
| **Reference to BIS codes** | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete |
| **Date of test** | : | 14/05/2021 |

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (kg) | (Sq.mm) | (KN) | ($N/mm^2$) | ($N/mm^2$) | ($N/mm^2$) |
| 1 | Cover Slab-1 | 75.51 | 100.48 | 1.116 | 4477 | 80.9 | 18.1 | 16.8 | 21.0 |
| 2 | Cover Slab-2 | 75.49 | 100.52 | 1.122 | 4475 | 82.3 | 18.4 | 17.1 | 21.4 |
| 3 | Cover Slab-3 | 75.50 | 100.51 | 1.118 | 4476 | 81.5 | 18.2 | 16.9 | 21.2 |

* The results obtained are satisfactory as per standard requirements.

**Note:**

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All information furnished by Customer/Representative
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Samples will be disposed after 30 days from the date of issue of test certificate

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Vidyaranyapura Sub Division
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Authorized Signatory
**Quality Manager**


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# TEST REPORT OF PRECAST COVER SLAB

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-06-28-53** **Date: 18-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 14-05-2021 |
| **Sample Type /Size** | : | Precast Cover Slab (250mm) |
| **Reference to BIS codes** | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete |
| **Date of test** | : | 14/05/2021 |

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (kg) | (Sq.mm) | (KN) | ($N/mm^2$) | ($N/mm^2$) | ($N/mm^2$) |
| 1 | Cover Slab-1 | 200.51 | 250.48 | 3.116 | 31570 | 580.9 | 18.4 | 17.1 | 21.4 |
| 2 | Cover Slab-2 | 200.49 | 250.52 | 3.122 | 31564 | 582.3 | 18.4 | 17.2 | 21.4 |
| 3 | Cover Slab-3 | 200.50 | 250.51 | 3.118 | 31567 | 581.5 | 18.4 | 17.1 | 21.4 |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
**Technical Manager**


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# TEST REPORT OF CEMENT CONCRETE KERB STONE

**Lab ID** : **CP-2021-06-28-53**

**Date: 19-05-2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 15-05-2021

**Sample Type /Size** : CC Kerb Stone/ 450*165*400mm

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete

**Date of test** : 15/05/2021

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | Kg | (Sq.mm) | (KN) | (N/mm2 ) | (N/mm2 ) | (N/mm2 ) |
| 1 | A | 100.01 | 165.51 | 2.864 | 7854 | 142.1 | 18.1 | 18.1 | 22.6 |
| 2 | B | 100.03 | 165.49 | 2.793 | 7857 | 145.2 | 18.5 | 18.5 | 23.1 |
| 3 | C | 100.01 | 165.50 | 2.815 | 7854 | 145.1 | 18.5 | 18.5 | 23.1 |

* The results obtained are satisfactory as per standard requirements.

**Note:**

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**R KARTHIK RECHAN**
Authorized Signatory
**Quality Manager**

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Format No: CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 08/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 03-05-2021

**Customer ID** : PCC

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M15 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 08/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PCC | M15 | 01/05/2021 | 08/05/2021 | 151.06 X 151.52 X 149.29 | 22889 | **8.970** | 276.3 | 12.1 | 12.2 |
| 2 | PCC | M15 | 01/05/2021 | 08/05/2021 | 151.51 X 150.47 X 150.25 | 22798 | **8.784** | 276.4 | 12.1 | |
| 3 | PCC | M15 | 01/05/2021 | 08/05/2021 | 149.25 X 151.71 X 150.99 | 22643 | **8.113** | 281.1 | 12.4 | |

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 29/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 03-05-2021

**Customer ID** : PCC

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M15 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 29/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PCC | M15 | 01/05/2021 | 29/05/2021 | 150.37 X 151.29 X 150.75 | 22748 | **8.479** | 394.1 | 17.3 | 17.3 |
| 2 | PCC | M15 | 01/05/2021 | 29/05/2021 | 149.48 X 150.16 X 149.80 | 22446 | **8.218** | 387.9 | 17.3 | |
| 3 | PCC | M15 | 01/05/2021 | 29/05/2021 | 151.36 X 150.34 X 150.77 | 22756 | **8.561** | 395.1 | 17.4 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 15/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 10-05-2021

**Customer ID** : Darin Bottom Slab Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 15/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 149.75 X 149.90 X 149.73 | 22448 | **8.317** | 416.6 | 18.6 | 18.7 |
| 2 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 150.65 X 151.58 X 151.17 | 22835 | **8.416** | 429.1 | 18.8 | |
| 3 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 151.25 X 150.46 X 150.70 | 22757 | **8.713** | 424.2 | 18.6 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 05/06/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 10-05-2021

**Customer ID** : Darin Bottom Slab Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 05/06/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 151.76 X 149.02 X 151.87 | 22615 | **8.360** | 527.8 | 23.3 | 23.2 |
| 2 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 150.83 X 151.06 X 149.79 | 22785 | **8.981** | 517.8 | 22.7 | |
| 3 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 149.55 X 151.83 X 150.20 | 22707 | **8.992** | 532.3 | 23.4 | |

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 15/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 10-05-2021

**Customer ID** : Darin Bottom Slab Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 15/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 150.50 X 151.64 X 149.74 | 22822 | **8.254** | 418.5 | 18.3 | 18.3 |
| 2 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 151.82 X 151.34 X 149.85 | 22978 | **8.435** | 419.7 | 18.3 | |
| 3 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 151.61 X 149.56 X 151.22 | 22674 | **8.593** | 416.8 | 18.4 | |

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 05/06/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 10-05-2021

**Customer ID** : Darin Bottom Slab Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 05/06/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 150.59 X 149.70 X 150.17 | 22542 | **8.141** | 525.2 | 23.3 | 23.2 |
| 2 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 151.60 X 149.70 X 151.10 | 22695 | **9.003** | 514.2 | 22.7 | |
| 3 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 149.20 X 150.65 X 149.52 | 22476 | **8.413** | 532.6 | 23.7 | |

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 15/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 10-05-2021

**Customer ID** : Darin Bottom Slab Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 15/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 149.12 X 149.53 X 151.58 | 22298 | **8.631** | 414.0 | 18.6 | 18.5 |
| 2 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 151.50 X 151.20 X 149.47 | 22906 | **8.946** | 423.3 | 18.5 | |
| 3 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 151.11 X 151.38 X 150.30 | 22875 | **8.358** | 421.4 | 18.4 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 05/06/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 10-05-2021

**Customer ID** : Darin Bottom Slab Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 05/06/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 149.17 X 151.29 X 151.96 | 22569 | **8.310** | 528.4 | 23.4 | 23.1 |
| 2 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 149.79 X 151.28 X 151.95 | 22660 | **8.843** | 505.8 | 22.3 | |
| 3 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 150.30 X 150.11 X 149.90 | 22562 | **9.021** | 528.9 | 23.4 | |

* The results obtained are satisfactory as per standard requirements.

**Note:**

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Samples will be disposed after 30 days from the date of issue of test certificate

Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore - 97

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**R KARTHIK RECHAN**
Authorized Signatory
**Quality Manager**


****End of Report****

Format No: CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 15/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 10-05-2021

**Customer ID** : Darin Bottom Slab Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 15/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 151.81 X 150.88 X 149.46 | 22905 | **8.632** | 422.3 | 18.4 | 18.4 |
| 2 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 151.32 X 150.50 X 151.89 | 22774 | **8.327** | 414.0 | 18.2 | |
| 3 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 15/05/2021 | 151.86 X 149.63 X 151.66 | 22722 | **8.693** | 424.4 | 18.7 | |

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Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore - 97

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**R KARTHIK RECHAN**
Authorized Signatory
**Quality Manager**


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Format No: CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-06-28-53** **Date: 05/06/2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 10-05-2021 |
| **Customer ID** | : | Darin Bottom Slab Concrete |
| **Sample Type /Size** | : | 150X150X150 mm |
| **Sample grade/Age** | : | M20 / 28 Days Compressive Strength |
| **Reference to BIS codes** | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5 |
| **Date of test** | : | 05/06/2021 |

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 151.57 X 151.12 X 151.34 | 22904 | **8.875** | 541.6 | 23.6 | 23.4 |
| 2 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 149.67 X 149.93 X 151.10 | 22440 | **8.554** | 515.5 | 23.0 | |
| 3 | Darin Bottom Slab Concrete | M20 | 08/05/2021 | 05/06/2021 | 150.44 X 150.29 X 151.11 | 22610 | **8.117** | 535.9 | 23.7 | |

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 18/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 13-05-2021

**Customer ID** : Darin Side Wall Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 18/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 149.55 X 150.67 X 150.18 | 22533 | 8.149 | 426.0 | 18.9 | 18.7 |
| 2 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 149.42 X 149.69 X 150.53 | 22367 | 8.299 | 413.6 | 18.5 | |
| 3 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 149.20 X 149.36 X 151.59 | 22284 | 8.160 | 416.9 | 18.7 | |

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BBMP, Bangalore - 97

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Authorized Signatory
Quality Manager


****End of Report****

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 08/06/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 13-05-2021

**Customer ID** : Darin Side Wall Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 08/06/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 150.93 X 149.31 X 150.63 | 22535 | 9.044 | 522.1 | 23.2 | 23.2 |
| 2 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 151.61 X 149.27 X 151.58 | 22631 | 8.929 | 508.1 | 22.5 | |
| 3 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 149.32 X 149.60 X 149.62 | 22339 | 8.599 | 532.4 | 23.8 | |

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**Quality Manager**


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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 18/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 13-05-2021

**Customer ID** : Darin Side Wall Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 18/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 149.54 X 150.56 X 151.12 | 22514 | **8.196** | 423.8 | 18.8 | 18.6 |
| 2 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 149.92 X 149.29 X 151.14 | 22381 | **9.052** | 419.6 | 18.7 | |
| 3 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 150.20 X 149.78 X 151.07 | 22496 | **8.893** | 409.4 | 18.2 | |

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 08/06/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 13-05-2021

**Customer ID** : Darin Side Wall Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 08/06/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 150.19 X 149.96 X 151.72 | 22523 | **8.128** | 536.6 | 23.8 | 23.4 |
| 2 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 150.89 X 151.25 X 151.83 | 22823 | **9.052** | 513.0 | 22.5 | |
| 3 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 151.28 X 150.98 X 150.00 | 22839 | **9.033** | 543.1 | 23.8 | |

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Vidyaranyapura Sub Division
BBMP, Bangalore - 97

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**Quality Manager**



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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 18/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 13-05-2021

**Customer ID** : Darin Side Wall Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 18/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 149.73 X 150.57 X 149.81 | 22545 | 8.967 | 407.9 | 18.1 | 18.1 |
| 2 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 149.91 X 149.43 X 150.87 | 22401 | 8.512 | 406.0 | 18.1 | |
| 3 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 151.75 X 149.34 X 149.21 | 22662 | 8.537 | 411.1 | 18.1 | |

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Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore - 97

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Authorized Signatory
**Quality Manager**


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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 08/06/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 13-05-2021

**Customer ID** : Darin Side Wall Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 08/06/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 149.68 X 151.02 X 151.87 | 22604 | **8.416** | 536.8 | 23.7 | 23.1 |
| 2 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 151.02 X 150.61 X 151.07 | 22745 | **8.971** | 507.6 | 22.3 | |
| 3 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 150.25 X 151.47 X 149.95 | 22758 | **8.537** | 525.5 | 23.1 | |

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Vidyaranyapura Sub Division
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****End of Report****

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 18/05/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 13-05-2021

**Customer ID** : Darin Side Wall Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 18/05/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 150.12 X 150.80 X 151.56 | 22638 | **8.902** | 417.5 | 18.4 | 18.3 |
| 2 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 150.60 X 149.30 X 150.46 | 22484 | **8.991** | 412.0 | 18.3 | |
| 3 | Darin Side Wall Concrete | M20 | 11/05/2021 | 18/05/2021 | 151.56 X 150.83 X 151.77 | 22861 | **9.084** | 415.0 | 18.2 | |

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Vidyaranyapura Sub Division
BBMP, Bangalore - 97

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**R KARTHIK RECHAN**
Authorized Signatory
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****End of Report****

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-06-28-53** **Date: 08/06/2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 13-05-2021

**Customer ID** : Darin Side Wall Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 08/06/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 149.79 X 150.23 X 151.08 | 22503 | 8.406 | 525.3 | 23.3 | 23.2 |
| 2 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 151.48 X 150.41 X 151.55 | 22783 | 8.744 | 513.6 | 22.5 | |
| 3 | Darin Side Wall Concrete | M20 | 11/05/2021 | 08/06/2021 | 151.58 X 149.51 X 151.67 | 22663 | 8.327 | 537.8 | 23.7 | |

* The results obtained are satisfactory as per standard requirements.

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## TEST RESULTS OF GRADATION FOR WMM

**Lab ID** : **CP-RW-2021-06-28-53** **Date: 13-05-2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 11-05-2021

**Type of Mix** : WMM ( Wet Mix Macadam)

**Date of Test** : 11-05-2021

**Oven Dry Weight** : 11000 Grams

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 315 | 315 | 2.9 | 97.1 | 95-100 |
| 22.4 | 2259 | 2574 | 23.4 | 76.6 | 60-80 |
| 11.2 | 2179 | 4753 | 43.2 | 56.8 | 40-60 |
| 4.75 | 2251 | 7004 | 63.7 | 36.3 | 25-40 |
| 2.36 | 1621 | 8625 | 78.4 | 21.6 | 15-30 |
| 0.6 | 623 | 9248 | 84.1 | 15.9 | 8-22 |
| 0.075 | 1338 | 10586 | 96.2 | 3.8 | 0-5 |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF AGGEGRATE IMPACT VALUE
## IS: 2386 Part IV

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** **Date: 13-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 11-05-2021 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of Test** | : | 11-05-2021 |

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 300.2 | 300.2 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 73.9 | 74.0 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 225.9 | 225.8 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 0.4 | 0.4 |
| 5 | Aggregate impact value | (B/A)*100 | 24.6 | 24.7 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 24.6 | |

* The results obtained are satisfactory as per standard requirements.

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# DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** **Date: 13-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 11-05-2021 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of Test** | : | 11-05-2021 |

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 12.8% | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 12.5% | |
| Combined Flakiness and Elongation Index for WMM | 25.3% | |

* The results obtained are satisfactory as per standard requirements.

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## TEST REPORT ON BITUMEN

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** **Date: 20-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 18-05-2021 |
| **Sample Type** | : | Bitumen |
| **Reference to BIS codes** | : | IS: 1201-1220(1978) (Reaffirmed-2004) |
| **Date of Test** | : | 18-05-2021 |

**Test Results**

| Sl.no | Name of Test | Result | Requirements as per IS:73-2013 |
|---|---|---|---|
| 1 | Penetration at 25°C , in 1/10th mm | **64** | 60 to 70 |
| 2 | Softening Point, °C | **51.2** | Min. 40°C |
| 3 | Ductility, cm | **98** | Min. 75cm |
| 4 | Flash point, °C | **245** | Min. 220°C |
| | Fire point, °C | **272** | |

* The results obtained are satisfactory as per standard requirements.

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## TEST RESULTS OF GRADATION FOR DBM
## (IS 2386:(Part 1) 1963 (RA2011)

**Lab ID** : **CP-RW-2021-06-28-53** **Date: 24-05-2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 22-05-2021

**Type of Mix** : DBM-Plant (Dense Bituminous Macadam)

**Date of Test** : 22-05-2021

**Weight of Sample** : 5000 Grams

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Specification Limits as per MORTH specification Table 500-10 (grading -2) |
|---|---|---|---|---|---|
| 37.5 | 0 | 0 | 0 | 100 | 100 |
| 26.5 | 250 | 250 | 5.00 | 95.00 | 90-100 |
| 19 | 350 | 600 | 12.00 | 88.00 | 71-95 |
| 13.2 | 450 | 1050 | 21.00 | 79.00 | 56-80 |
| 4.75 | 1750 | 2800 | 56.00 | 44.00 | 38-54 |
| 2.36 | 400 | 3200 | 64.00 | 36.00 | 28-42 |
| 0.3 | 1350 | 4550 | 91.00 | 9.00 | 7-21 |
| 0.075 | 250 | 4800 | 96.00 | 4.00 | 2-8 |
| PAN | 200 | 5000 | 0.00 | 0 | 0 |

* The results obtained are satisfactory as per standard requirements.

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# PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

| | | | |
|---|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** | **Date: 25-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. | |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. | |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) | |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 | |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 | |
| **Source of Sample** | : | Sample supplied by Agency | |
| **Sample Condition** | : | Satisfactory | |
| **Date of Receipt** | : | 22-05-2021 | |
| **Type of Mix** | : | DBM (Dense Bituminous Macadam) | |
| **Date of Test** | : | 22-05-2021 | |

**Table 500-6 : Physical Requirements fo Coarse Aggregate for Dense Bituminous Macadam**

| Property | Test | Result | Specification | Method of Test |
|---|---|---|---|---|
| Partical Shape | Flakiness Index | 13.0 | Combined Flakiness & Elongation Index for DBM is Maximum 35% | IS:2386 Part I |
| | Elongation Index | 11.0 | | |
| Strength | Aggregate Impact Value | 21.0 | Maximum 30% | IS:2386 Part IV |
| Specific gravity | Specific gravity | 2.58 | Maximum 2.7 | IS:2386 Part III |
| Water Absorption | Water Absorption | 0.38 | Maximum 2% | IS:2386 Part III |

* The results obtained are satisfactory as per standard requirements.

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## TESTS RESULTS ON STABILITY OF MIX

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** **Date: 25-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Hot Mix Plant, Bangalore |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 22-05-2021 |
| **Type of Mix** | : | DBM (Dense Bituminous Mecadam) |
| **Date of Test** | : | 22-05-2021 |

**The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow**

| Sl.No | Particulars of observations | TEST 1 | TEST 2 | Secified limits as per MORTH specification table 500-11 |
|---|---|---|---|---|
| 1 | Marshal Stability at 60°C, KN | 11 | 15 | 9KN(Min) |
| 2 | Marshal flow at 60°C, mm | 2 | 3 | 2-4 |
| 3 | Percent air Voids | 3 | 3 | 3-5 |
| 4 | Percent Voids in mineral Aggregate(VMA %) | 15 | 13 | 13-15 |
| 5 | Percent Voids filled with Bitumen(VFB %) | 66 | 75 | 65-75 |
| 6 | Density, g/cc | 2.42 | 2.40 | – |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** **Date: 25-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 22-05-2021 |
| **Type of Mix** | : | DBM(Dense Bitumnous Macadam) |
| **Date of Test** | : | 22-05-2021 |

| | | |
|---|---|---|
| **Type of Binder** | : | 60/70 |
| **% of Binder Used** | : | 5.0% |
| **Weight of Aggregate** | : | 200.0 gm |
| **Weight of Binder** | : | 10.0 gm |
| **Temperature of water bath** | : | 40°C |

| No of test | Retained Stripping Percentage | Stripping Percentage | Average Retained Stripping Percentage | Secified limits as per MORTH specification table 500-8 |
|---|---|---|---|---|
| 1 | 98.0 | 2.0 | 98.0 | Minimum Retained Coating 95% |
| 2 | 99.0 | 1.0 | | |
| 3 | 97.0 | 3.0 | | |

* The results obtained are satisfactory as per standard requirements.

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## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011)

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** **Date: 01-06-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Date of Receipt** | : | 31-05-2021 |
| **Type of Mix** | : | DBM (Dense Bituminous Macadam) |
| **Date of Test** | : | 31-05-2021 |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 500 | 500 |
| 2 | Weight of the sample After extraction | B | 475 | 476 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 4.8 | 4.8 |
| 4 | Average percentage | % | 4.8 | |

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**Lab ID** : **CP-RW-2021-06-28-53** **Date: 01-06-2021**

**AFTER EXTRACTION(Trail-1)**

**Weight of Sample(gm)** : 475

| IS Sieve Size(mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Specification Limits as per MORTH specification Table 500-10(grading -2) |
|---|---|---|---|---|---|
| 37.5 | 0 | 0 | 0 | 100.0 | 100 |
| 26.5 | 14.4 | 14.4 | 3.03 | 97.0 | 90-100 |
| 19 | 24 | 38.4 | 8.08 | 91.9 | 71-95 |
| 13.2 | 120 | 158.4 | 33.35 | 66.7 | 56-80 |
| 4.75 | 96 | 254.4 | 53.56 | 46.4 | 38-54 |
| 2.36 | 81 | 335.4 | 70.61 | 29.4 | 28-42 |
| 0.3 | 62.4 | 397.8 | 83.75 | 16.3 | 7-21 |
| 0.075 | 52.8 | 450.6 | 94.86 | 5.1 | 2-8 |

**AFTER EXTRACTION(Trail-2)**

**Weight of Sample(gm)** : 476

| IS Sieve Size(mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Specification Limits as per MORTH specification Table 500-10(grading -2) |
|---|---|---|---|---|---|
| 37.5 | 0 | 0 | 0 | 100.0 | 100 |
| 26.5 | 0 | 0 | 0.00 | 100.0 | 90-100 |
| 19 | 48 | 48 | 10.08 | 89.9 | 71-95 |
| 13.2 | 50 | 98 | 20.59 | 79.4 | 56-80 |
| 0.3 | 40 | 379 | 79.62 | 20.4 | 7-21 |
| 0.075 | 60 | 439 | 92.23 | 7.8 | 2-8 |

* The results obtained are satisfactory as per standard requirements.

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## TEST RESULTS OF GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2007 )

**Lab ID** : **CP-RW-2021-06-28-53** **Date: 28-05-2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 26-05-2021

**Type of Mix** : BC-Plant (Bituminous Concrete)

**Date of Test** : 26-05-2021

**Oven Dry Weight** : 5000 Grams

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-17(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 89 | 89 | 1.8 | 98.2 | 90-100 |
| 9.5 | 702 | 791 | 15.8 | 84.2 | 70-88 |
| 4.75 | 895 | 1686 | 33.7 | 66.3 | 53-71 |
| 2.36 | 587 | 2273 | 45.5 | 54.5 | 42-58 |
| 1.18 | 492 | 2765 | 55.3 | 44.7 | 34-48 |
| 0.6 | 503 | 3268 | 65.4 | 34.6 | 26-38 |
| 0.3 | 528 | 3796 | 75.9 | 24.1 | 18-28 |
| 0.15 | 458 | 4254 | 85.1 | 14.9 | 12-20 |
| 0.075 | 350 | 4604 | 92.1 | 7.9 | 4-10 |
| PAN | 396 | 5000 | 100 | 0.0 | 0 |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** **Date: 29-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 26-05-2021 |
| **Type of Mix** | : | BC(Bitumenous Concrete) |
| **Date of Test** | : | 26-05-2021 |

| | | |
|---|---|---|
| **Type of Binder** | : | 60/70 |
| **% of Binder Used** | : | 5.0% |
| **Weight of Aggregate** | : | 200.0 gm |
| **Weight of Binder** | : | 10.0 gm |
| **Temperature of water bath** | : | 40°C |

| No of test | Retained Stripping Percentage | Stripping Percentage | Average Retained Stripping Percentage | Secified limits as per MORTH specification table 500-8 |
|---|---|---|---|---|
| 1 | 98.5 | 1.5 | 98.3 | Minimum Retained Coating 95% |
| 2 | 98.5 | 1.5 | | |
| 3 | 98.0 | 2.0 | | |

* The results obtained are satisfactory as per standard requirements.

**Note:-**
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****End of Report****

## PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

**Lab ID** : **CP-RW-2021-06-28-53** **Date: 29-05-2021**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura)

**Agency** : Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013

**Customer Reference** : BBMP/EE/BTP/WO/154/2020-21

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 26-05-2021

**Type of Mix** : BC (Bituminous Concrete)

**Date of Test** : 26-05-2021

**Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete**

| Property | Test | Result | Specification | Method of Test |
|---|---|---|---|---|
| Partical Shape | Flakiness Index | 12.4 | Combined Flakiness & Elongation Index for BC is Maximum 35% | IS:2386 Part I |
| | Elongation Index | 11.8 | | |
| Strength | Aggregate Impact Value | 22.1 | Maximum 24% | IS:2386 Part IV |
| Specific gravity | Specific gravity | 2.68 | Maximum 2.7 | IS:2386 Part III |
| Water Absorption | Water Absorption | 0.21 | Maximum 2% | IS:2386 Part III |

* The results obtained are satisfactory as per standard requirements.

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# TESTS RESULTS ON STABILITY OF MIX

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** **Date: 29-05-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Source of Sample** | : | Hot Mix Plant, Bangalore |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 26-05-2021 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of Test** | : | 26-05-2021 |

**The results of the tests conducted on the Bituminous Concrete mix sample are as follow**

| Sl.No | Particulars of observations | TEST 1 | TEST 2 | Secified limits as per MORTH specification table 500-11 |
|---|---|---|---|---|
| 1 | Marshal Stability at 60°C, KN | 11.14 | 11.13 | 10KN(min) |
| 2 | Marshal flow at 60°C, mm | 3.52 | 3.51 | 2-4 |
| 3 | Percent air Voids | 4.82 | 4.83 | 3-5 |
| 4 | Percent Voids in mineral Aggregate(VMA %) | 14.28 | 14.26 | 13-15 |
| 5 | Percent Voids filled with Bitumen(VFB %) | 71.87 | 71.63 | 65-75 |
| 6 | Density, g/cc | 2.25 | 2.26 | – |

* The results obtained are satisfactory as per standard requirements.

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## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011 )

| | | | |
|---|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** | **Date: 02-06-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. | |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. | |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) | |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 | |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 | |
| **Source of Sample** | : | Sample supplied by Agency | |
| **Date of Receipt** | : | 01-06-2021 | |
| **Type of Mix** | : | BC (Bituminous Concrete) | |
| **Date of Test** | : | 01-06-2021 | |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 500 | 500 |
| 2 | Weight of the sample After extraction | B | 469 | 470 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 6.20 | 6.00 |
| 4 | Average percentage | % | 6.1 | |

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**Lab ID** : **CP-RW-2021-06-28-53** **Date: 02-06-2021**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 469

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 4 | 4 | 0.9 | 99.1 | 90-100 |
| 9.5 | 62 | 66 | 14.1 | 85.9 | 70-88 |
| 4.75 | 112 | 178 | 38.0 | 62.0 | 53-71 |
| 2.36 | 88 | 266 | 56.7 | 43.3 | 42-58 |
| 1.18 | 29 | 295 | 62.9 | 37.1 | 34-48 |
| 0.6 | 11 | 306 | 65.2 | 34.8 | 26-38 |
| 0.3 | 46 | 352 | 75.1 | 24.9 | 18-28 |
| 0.15 | 45 | 397 | 84.6 | 15.4 | 12-20 |
| 0.075 | 51 | 448 | 95.5 | 4.5 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 470

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 4 | 4 | 0.9 | 99.1 | 90-100 |
| 9.5 | 62 | 66 | 14.0 | 86.0 | 70-88 |
| 4.75 | 112 | 178 | 37.9 | 62.1 | 53-71 |
| 2.36 | 88 | 266 | 56.6 | 43.4 | 42-58 |
| 1.18 | 29 | 295 | 62.8 | 37.2 | 34-48 |
| 0.6 | 11 | 306 | 65.1 | 34.9 | 26-38 |
| 0.3 | 46 | 352 | 74.9 | 25.1 | 18-28 |
| 0.15 | 45 | 397 | 84.5 | 15.5 | 12-20 |
| 0.075 | 50 | 447 | 95.1 | 4.9 | 4-10 |

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## DETERMINATION OF RATE OF SPREAD TACK COAT

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-06-28-53** **Date: 02-06-2021** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements of Roads and Drains at HMT Layout, Thindlu, Virupakshapura and Surrounding areas in Ward no 09 (Vidyaranyapura) |
| **Agency** | : | Sri.Aswathnarayana, #38, Chanappa Layout, sharadhambanagara, Jalahalli Village, Bangalore-560013 |
| **Customer Reference** | : | BBMP/EE/BTP/WO/154/2020-21 |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 01-06-2021 |
| **Type of Mix** | : | Tack coat |
| **Date of Test** | : | 01-06-2021 |

| Sl.No | Determination | Unit | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Size of Plate (mxm) | Mt | 0.30 x .30 | 0.30 x .30 |
| 2 | Area of Plate (a) | Sq.mtr | 0.09 | 0.09 |
| 3 | Initial Wt of empty Plate (b) | Kg | 0.78 | 0.748 |
| 4 | Final weight of plate after application of tack Coat ( c) | Kg | 0.803 | 0.771 |
| 5 | Weight of tack Coat (d=c-b) | Kg | 0.023 | 0.023 |
| 6 | Rate of spread of tack coat | Kg/sq.m | 0.256 | 0.256 |
| 7 | Average | Kg/sq.m | 0.256 | |
| 8 | Specified Limit | Kg/sq.m | 0.250 Kg/sq.m | |

* The results obtained are satisfactory as per standard requirements.

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